

Amendments to the Specification

Please amend the original specification as filed on November 24, 2003, as follows.

Replace paragraph [0003] with the following paragraph:

FIG. 1 of this specification represents a commercial embodiment of the prior art of U.S. Pat. No. 4,610,319, and FIG. 1A represents a commercial embodiment of the prior art of U.S. Pat. No. 5,678,829. These figures are discussed herein to enhance the readers' understanding of the distinction between prior art hydrodynamic seals and the present invention. The lubrication and exclusion principles of FIG. 1 are also used in the prior art seals of U.S. Pat. Nos. 5,230,520, 5,738,358, 5,873,576, 6,007,105, 6,036,192, 6,109,618, 6,120,036, 6,227,547, 6,315,302, 6,334,619, 6,382,634, and 6,494,462, which are commonly assigned herewith. The aforementioned patents pertain to various seal products of Kalsi Engineering, Inc. of Sugar Land, ~~Tex.~~ Texas, that are known in the industry by and sold under the registered trademark "Kalsi Seals" KALSI SEALS, and are employed in diverse rotary applications to provide lubricant retention and contaminant exclusion in harsh environments.

Replace paragraph [0056] with the following paragraph:

FIG. 9 is a fragmentary cross-sectional view of an alternate embodiment of the invention wherein the energizer defines the static sealing lip, and the lubricant end of the seal is ~~wavy~~; wavy.

Replace paragraph [0058] with the following paragraph:

In FIG. 2, a fragmentary transverse cross-sectional view is shown representing the cross-sectional configuration of the preferred embodiment of the hydrodynamic seal 103 of the present invention when located in and positioned by a circular seal groove 106 defined by machine component 109 (such as a housing) and compressed between groove counter-surface 112 of circular seal groove 106 and relatively rotatable surface 115 of machine component 118. This

initiates a static sealing relationship with groove counter-surface 112 and relatively rotatable surface 115 in the same manner as any conventional interference type seal, such as an O-Ring. Groove counter-surface 112 and relatively rotatable surface 115 are in generally opposed relation to one-another. Machine component 109 and machine component 118 together typically define at least a portion of a lubricant chamber 122 for locating a first fluid 121. The compressed configuration of the hydrodynamic seal 103 shown in FIG. 2 is representative of its shape when the pressure of first fluid 121 is substantially the same as the pressure of second fluid 124.

Replace paragraph [0070] with the following paragraph:

The first footprint edge 157 will be shaped in a wave pattern similar to the wave pattern of blend location 141, but may occur on either the left or right side of blend location 141, depending on the magnitude of seal compression, swelling and thermal expansion; expansion, etc. It can be appreciated that if the first footprint edge 157 occurs on the sloping dynamic sealing surface 140, the resulting hydrodynamic wedging angle 158 (exaggerated for clarity) between the dynamic sealing lip 127 and the relatively rotatable surface 115 will be more efficient than if the first footprint edge 157 occurs on the hydrodynamic inlet curvature 142. It can also be appreciated that the hydrodynamic inlet curvature 142 helps to limit the ultimate width that the interfacial contact footprint can achieve, and therefore helps to mitigate the effects that compression variations, swelling, thermal expansion, etc. have on footprint width dimension W.